

PIER Advisory Board Meeting

Meeting Notes

March 30, 2011

Meeting Summary (highlights)

- ❖ Strategic plan
 - Need a balance of funding between demonstration projects and more fundamental research projects
 - May want to consider extending planning horizon beyond 2020, perhaps to 2030.
 - Connect the strategic plan to rate payer benefits. These benefits need to be clearly defined, and they should include both direct and societal benefits.
 - Plan should be flexible and updated frequently.
- ❖ Transparency
 - The three advisory groups that address specific topics and support the PIER Advisory Board appear to be a reasonable recommendation. One member asked for more details.
 - There was discussion about whether or not the PIER Advisory Board should have decision making authority or else remain as an advisory entity, i.e., no decision making role.
- ❖ Re-authorization
 - Jackie Kinney, speaking on behalf of Senator Padilla's office, indicated the following:
 - Senator Padilla is committed to State role in public interest research.
 - Room exists for improving PIER.
 - Big challenge is getting two-thirds vote for re-authorization.
- ❖ Board member input (round-robin after lunch)
 - Need a vision of where the energy system in California should be headed for the next several decades.
 - Need clearly defined mission and goals statement (tied to the vision).
 - Electricity and natural gas grids will be increasingly used to meet vehicle transportation energy requirements. Need to make sure technologies that are developed can be integrated into the grid.
 - Integration of technologies such as renewable generation, PEVs, and smart meters into California smart grid is important and challenging.
- ❖ Additional Board member comments (following staff presentations)
 - Is \$24 million the right amount of funding for two demonstration programs (five projects)?
 - Need to have balance of funding between short-term, mid-term, and long-term research.
 - Venture Capital (VC) Forum game changer should engage private equity investors as well as VC firms.
 - Skepticism expressed on the Zero Net Energy (ZNE) game changer leading to lower costs (the program may confirm that the costs of achieving ZNE are high).

- ❖ Comments from Commissioners
 - Boyd
 - Need to improve effectiveness of PIER communications.
 - Game changers should be programs that will not get done otherwise.
 - Weisenmiller
 - Need to focus on California issues and spend funds in California.
 - Coordination with DOE can be a problem given uncertainties in how DOE will spend future funds.
- ❖ Jobs Creation
 - Jim Sweeney and Adrienne Kandel presented a paper on the impact of PIER funding on jobs.
 - Conclusion is that PIER Small Grants Program, which accounts for only 5% of total PIER program expenditures, has created 30,000 jobs (10,000 direct jobs and 20,000 related jobs).
 - The Small Grants program has lead to nearly \$40 of private non-utility follow-on investment for every \$1 of PIER funding.

Introduction

Chair Weisenmiller called the meeting to order at approximately 10:40 AM. Chair Weisenmiller started out by introducing new Board Members and acknowledged participation from the Legislature. As part of his introductory remarks, Chair Weisenmiller mentioned a few of the issues that Governor Brown has asked him to focus on, including:

- ❖ Put together a strategic plan for renewable generation and transmission
- ❖ Help to implement the clean energy jobs goal
 - 20,000 MW of new renewable capacity by 2020: 12,000 MW from DG, 8,000 MW of utility scale, 6,500 MW of combined heat and power (CHP), and zero net energy (ZNE) houses
- ❖ High priority is to get public goods charge re-authorized
 - Vital for innovation
 - Innovation helps re-build economy and create jobs
 - Innovation also helps the State meet climate challenges
 - PIER (R&D) is a key part of bringing innovation into California

When Vice Chair Boyd provided introductory remarks, he talked about the plans for today's meeting and discussed what has happened since the previous Advisory Board meeting that was held in November, 2010. He mentioned that since the last Advisory Board meeting discussions have been held with many stakeholders. One prevalent theme from stakeholder feedback is that PIER program is valuable, but the California Energy Commission needs to take steps to improve PIER's effectiveness, responsiveness, and to become better understood. He encouraged the meeting participants to use this forum, i.e., the PIER Advisory Board meeting, to express concerns and ask questions.

- ❖ The following Board members (or designated representatives for Board members) then provided self introductions (full list of board members attached):
 - David Geier, Sempra Energy / SDGE
 - Hal Snyder, Sempra Energy / SDGE
 - Peter Miller, National Resources Defense Council
 - Steven Schiller, CA Energy Efficiency Industry Council
 - Kevin Dasso, Pacific Gas & Electric
 - Mike DeAngelis, Sacramento Municipal Utilities District (SMUD)
 - John Boesel, CALSTART
 - Honorable Byron Sher, Tahoe Regional Planning Agency Governing Board
 - Paul Clanon, CA Public Utilities Commission
 - Sean Randolph, Bay Area Council Economic Institute
 - John Minnicucci, Southern California Edison, attending for Jim Kelly
 - Jan Sharpless, Reliability Policy Issues Committee
 - Jim Sweeney, Precourt, Stanford University
 - Ken Spence, Office of Assemblyman Fletcher
 - Ryan McCarthy, California Air Resources Board attending for Mary Nichols
 - John Shears, Center for Energy Efficiency and Renewable Technology, attending for V. John White
 - V. John White, Center for Energy Efficiency and Renewable Technology
 - Jackie Kinney, Office of Senator Padilla

- ❖ The members of the audience provided self introductions.

Actions to Implement Advisory Board Recommendations

- ❖ Laurie ten Hope presented slides on actions to implement Advisory Board recommendations (Slides 12-15 in Briefing Book).
 - Reviewed 10 recommended actions from the November 2010 meeting of the PIER Advisory Board
 - Then, indicated that responses to the 10 recommendations were organized around themes:
 - Strategic planning
 - Transparency
 - Streamlining
 - Communicating value

PIER Strategic Plan

- ❖ Laurie presented slides on PIER strategic planning (slides 16-18 in package).
- ❖ Laurie asked for comments and suggestions on the strategic plan presentation. For example, how flexible should the plan be?
 - Jim Sweeney
 - The importance of a strategic plan is that the plan would be a “living document.” Preparing a plan every 5 years is not frequent enough.
 - Laurie added that updates to a strategic plan are expected every 2 years.

- Hal Snyder
 - Be sure to make sure that strategic plan shows value to customers, i.e., the individuals that fund program. Need to test that rate payers see the benefits.
- Mike DeAngelis
 - Suggested that time frame should be 2030 rather than 2020.
- Jan Sharpless
 - Need to be adaptive and flexible.
 - Talked about customer value and suggested that this term may need further consideration. For example, customers might have a narrow view of value, based on:
 - Outages (is my power always on?)
 - Monthly bill (is my bill lower or higher?)
- Kevin Dasso
 - Suggested that the Loading Order might not be the best “anchor” for driving PIER research.
- David Geier
 - Need to think about governance.
 - Suggested that a section on how PIER will run business over the next few years would be important.
- Steve Schiller
 - Strategic plan should talk about risk management of research portfolio.
 - Strategic plan should be useful for PIER managers. What is the role of public interest research compared to other research organizations?
- John Shears (representing V. John White)
 - PIER work should help support the State’s climate and energy policies, while enhancing the integration of renewables into a reliable grid.
 - Other benefits to consumers include non-traditional outcomes such as improvements in public health and productivity.
- Ryan McCarthy
 - Need to have flexibility in the strategic plan. There will be a lot of changes over the next few years, particularly in the electricity sector.
 - There are tradeoffs between enhanced governance and maximizing the results from the PIER program. Need to be thoughtful in how PIER funds are spent to maximize the results.
 - Need to be cautious on how much funding is shifted toward demonstration activities. Demonstration projects are a lot more expensive than fundamental work.
- Jim Sweeney
 - How should public interest and rate payer benefits be viewed? May need a legislative decision.
 - Benefits can flow directly to rate payers through utilities.
 - Rate payers could see other benefits that apply to the public, e.g., improved air and water quality.

- John Boesel
 - Supports a more global purpose of PIER program.
 - Will be important for strategic plan to address increasing use of grid for transportation issues (e.g., impact of EVs on the grid?).
- Laurie concluded the strategic planning discussion by asking if Board members were interested in participating in strategic planning effort.
 - As a group, the Board members generally expressed interest in participating in this process.

Transparency

- ❖ Laurie presented slides on transparency (Slides 19-26).
 - Talked about a proposal to set-up three advisory groups to support the PIER Advisory Board:
 - Energy efficiency
 - Renewables
 - Smart infrastructure: Transmission and Distribution (T&D) for renewable integration, transportation, and climate
 - Talked about bringing high level budget to PIER Advisory Board early in the planning process.
 - Board members can then provide input on the balance and priorities across the portfolio.
 - High level information from PIER Advisory Board would filter down to three subgroups to provide guidance for these subgroups.
- ❖ Feedback from Board members
 - Jan Sharpless
 - Where do environmental projects fall?
 - Laurie responded that environmental projects fit in all three subgroups
 - Where do climate change issues fall?
 - Laurie responded that climate change would fit within the smart infrastructure subgroup
 - Steve Schiller
 - Value of subgroups is to do a better job of connecting PIER research to actual needs in the market place.
 - A big benefit from subgroups could be two-way communication between PIER staff and participants in the market place that need to implement solutions developed by PIER research.
 - Hal Snyder
 - The idea of subcommittees to carry out the PIER Advisory Board mission and work is acceptable.
 - Suggested that Advisory Board should have decision making role.
 - Jim Boyd
 - Encouraged Board members to provide candid feedback at today's meeting.

- Has heard a lot of comments from stakeholders since the last meeting in November that have not been raised in past meetings.
- Important for Board members to raise issues and concerns such that CEC can respond appropriately.
- Jim Sweeney
 - Talked about two PIER advisory structures: 1) independent advisory committees, and 2) the current advisory board council.
 - Asked why CEC uses PIER Advisory Board for input rather than using independent review approach.
 - Laurie responded that legislation changed, which led to changes in how advisory groups are set-up
 - Jim Boyd mentioned that legislation created current Advisory Board as a result of earlier independent reviews
- Jan Sharpless
 - Talked about pros and cons of independent review approach.
 - Suggested that current advisory board body is set-up to provide input to PIER program as to where the research priorities should be.
 - Talked about differences in the type of people that would be represented on an advisory group compared to an independent decision making body. Roles are different as well – an independent board would not include funding recipients.
 - Suggested that advisory role makes sense for PIER program.
- Kevin Dasso
 - Supports subcommittee structure.
 - Suggested that discussions need to take place to determine what topics should be included in each subcommittee (there could be a lot of cross over between subcommittees).
- Steve Schiller
 - Likes the idea of having an advisory group rather than a decision making group.
 - Advisory group provides input. If PIER program is not going in the direction desired, there are other venues that can be pursued to address these concerns.
- Mike DeAngelis
 - Likes the Advisory Board structure (advice, and not decision making)
 - Supports staff proposal for subcommittees, but would like to see more details (roles, interactions between groups, timing for communication, technical topics included in subcommittees)
- Peter Miller
 - Supports advisory nature of current Board.
 - Independent reviews conducted in the past have been valuable, and an independent review could be requested if needed in the future.
- John White
 - Have talked a lot about PIER history and defending past actions. Moving forward, though, the big question is whether a bill will be passed that allows PIER to be re-authorized. If so, what will this bill look like?

- Suggested that PIER is the toolbox to achieve policy goals or solve problems, including:
 - 33% renewables
 - AB 32
- Maybe research programs from multiple agencies need to be integrated
 - ARB
 - PUC
 - CEC
- Need to visualize the PIER program in bigger terms.
- Jim Sweeney
 - Made additional comments on independent review roles and advisory group roles
 - Suggested that recommendations from an independent body might hold more weight with the Legislature than recommendations produced from within an organization.
- David Geier
 - We are at a critical point, and face challenging technical problems (e.g., 33% renewables, integration of electric vehicles, etc.).
 - Need an organization that can provide keen focus to help the State solve critical problems.
- Jackie Kinney – speaking on behalf of Senator Padilla
 - Senator Padilla is committed to a State role in public interest energy research (the exact nature of this role is under debate).
 - There is room for improvement to the PIER program.
 - Emphasized that the biggest challenge is that a two-thirds vote will be required to re-authorize public goods charge. Need to effectively and quickly communicate PIER program value and improvements to get two-thirds vote.
 - Asked whether three proposed subcommittees will cover the same universe of topics covered in the seven previous groups.
 - Laurie responded that the exact coverage remains to be determined. As a starting point, all seven of the previous topics will be covered, but this could change depending on legislative direction and strategic plan.
- John Minnicucci
 - He thinks that members should have more decision making authority.
 - Decision making authority could help program move forward more quickly.
- Byron Sher
 - Asked about how discussions in Legislature are going, and brought up the LAO report.
 - Is there an assumption that PIER will continue, and if so, will PIER continue with CEC?
- Robert Weisenmiller
 - What is the purpose of today's meeting?
 - The Chair and the Vice Chair will be listening to recommendations on how things can be done better.

- Indicated that he has mandate from the Governor to re-focus and improve effectiveness.
 - Important drivers for public officials
 - Public safety
 - Reliability
 - Concerning remarks on LAO report and re-authorization
 - Have had a couple hearings with Senator Padilla's office
 - Governor's office believes strongly that public goods charge should be re-authorized
 - The exact shape of PIER program remains to be determined.
- Jim Boyd
 - Said that the financial problems are extremely challenging in California.
 - To be candid, it will be difficult to get two-thirds vote in Legislature to re-authorize public goods charge.
 - Talked about collaboration and coordination with sister agencies.
- John White
 - There are reasons to be optimistic. Several senators are facing important energy issues:
 - Senator Blakeslee – issues and operation at Diablo Canyon
 - Senator Emerson – renewable energy issues in desert, including transmission line corridors
 - Senator Wright – remains interested in PIER
 - PIER can help utilities succeed in meeting State energy policy goals
 - Need to be proactive and need a new story to communicate to Legislature.
 - Need a clearly defined mission and then structure will follow.
- Jan Sharpless
 - California budget is in dire condition.
 - Talked about California being interconnected through Western Electricity Coordinating Council. There are a lot of dependency issues between western states.
 - Sometimes need a major event to get the Legislature's attention. For example a widespread blackout.
 - Asked how the PIER Advisory Board can best help CEC and PIER staff make a case to the Legislature for re-authorization.
- Steve Schiller
 - Suggested that the afternoon be spent in an advisory role.
 - Two big issues
 - What are the portfolio outcomes
 - Smarter management, versus more management
 - Two audiences
 - Stakeholders (CEC, PIER staff, members of the audience)
 - Legislature
- David Geier
 - California has a chance to be a Smart Grid leader. Lots of change is coming to utilities. Need research in California.

- Would like to spend time talking about how to make PIER research more effective.
- Sean Randolph
 - Should think about economic benefits in addition to rate payer benefits.
 - Legislature is concerned about job creation and economic growth.
- Jim Sweeney
 - Fundamental goal for afternoon should be to have a discussion that will be most useful for Commissioners to support helping PIER go forward.
 - Decision makers need the best wisdom available.
- John Minnicucci
 - Need a broad program that addresses State energy needs.
 - Suggested that Legislative members would be receptive to seeing that Advisory Board and PIER staff are responding to LAO report and laying out a plan for the future.
- Laurie ten Hope
 - Summarized recent conversations. Indicated that she heard four things that should happen during afternoon session or in the near future:
 - Shape legislation
 - Come up with strategic direction and plan
 - Present budget plan
 - Dig into the governance structure
- Robert Weisenmiller
 - Suggested that there is a lot of good information in the presentation package that should be presented during the afternoon.

Afternoon Session

- ❖ Laurie presented reordered the agenda in response to the morning's discussion
 - Round robin with Advisory Board members
 - What are the most critical elements for a PIER program going forward?
 - Budget presentations
 - Game changers
 - Team presentations
 - Streamlining

Round Robin Input from Advisory Board Members

- ❖ David Geier
 - Technical issues
 - Be consistent with State policy (e.g., integration of 12,000 MW of renewables)
 - Integration of EVs into grid
 - How do we take smart grid and make it the grid of the future for California?
 - Governance issues
 - Need a focused approach.
 - If citizens are funding R&D, then these funds need to be dedicated to R&D.

- ❖ Steve Schiller
 - Contracting
 - Need to get contracts in place more quickly
 - Need to get results disseminated more quickly
 - Strategic planning
 - There may be an opportunity for PIER to develop comprehensive energy infrastructure plan for California (clean, reliable, safe, secure, low carbon, etc.)
 - Comprehensive state-wide plan could encompass several more focused plans (e.g., smart meters, energy efficiency, RPS, nuclear, etc.)
 - Is concerned about demonstration of zero net energy buildings.
- ❖ Kevin Dasso
 - Need to have a clear mission or goal. What is PIER trying to accomplish?
 - Concerned about the grid meeting challenges of the future.
 - Has not heard much about how the PIER program is managed
 - PIER needs to be managed efficiently with low overheads.
 - Well run program needs to be lean, with as much money as possible going into R&D, not overheads.
- ❖ John Boesel
 - Natural gas and electricity grids will be increasingly used for transportation. Need to figure out how to develop grid to best meet transportation needs and potentially take advantage of EVs (e.g., vehicle energy storage to support grid).
 - Can distributed generation technologies be used to meet a portion of transportation needs.
 - Need technologies to help support conversion of renewable waste materials for pipeline fuel.
 - Need program and contracting reform.
- ❖ Byron Sher
 - Need a tighter focus. Need to address technological barriers that stand in the way of achieving State energy goals
 - AB 32
 - RPS
 - Green jobs
 - Governor supports DG, and PIER research should be consistent with this policy goal.
 - Suggested that PIER should have a more comprehensive biogas plan.
- ❖ Paul Clanon
 - Direction established since last November needs to be continued.
 - Renewables and efficiency are key topics for State, tied together by smart grid.
 - PIER should focus on game changers.
- ❖ Sean Randolph
 - Need to be aligned with State policies.
 - Smart grid is a good focus for PIER.
 - Game changers can distinguish PIER.

- ❖ John Minnicucci
 - Need a tighter focus on meeting challenges between now and 2020.
 - Grid is critical, and supports PIER focus on grid.
 - Communications are important (including cyber security).
- ❖ Jan Sharpless
 - Programmatic / Policy
 - Governance (how decisions are made)
 - On the right track.
 - Understands that goals and objectives of “sister agencies” don’t always match
 - Must sell the PIER program to the Legislature
 - Need to translate benefits to rate payers
 - In some cases it is difficult to quantify benefits (e.g., reliability, cyber security, etc.)
 - Technical
 - Cyber security
 - Integration of renewables into the grid
 - Transmission expansion
 - Growth of DG and balance with central generation
 - Don’t lose sight of environmental issues. Worried that the environmental issues may be diminished in effort to sell PIER program to the Legislature.
- ❖ Jim Sweeney
 - Process
 - First start with a vision of where the California energy system is going. Think about time frame of several decades, not just out to 2020.
 - For example, where would California like to be a few decades down the road?
 - What are the barriers, and what role can PIER have to break these barriers.
 - Substance areas
 - Smart meters
 - Many opportunities beyond just avoiding the cost of hiring meter readers.
 - Can create home area networks, allowing consumers to take greater control over their energy use.
 - Energy efficiency
 - Historically dominated by lighting
 - Lots of other energy efficiency opportunities. For example, many opportunities in natural gas (e.g., waste heat use).
 - Plans need to be guided by strategic goals
 - CO2 reduction and other environmental challenges
 - Secure and reliable system
 - Nuclear interest will slow
 - Need technologies that have a reasonable cost while achieving security and reliability goals.

- ❖ Ken Spence
 - Mentioned the importance of highlighting research dollars spent in a specific Legislative member's district.
 - Commented on the importance of collecting progress data (benefits) from funding recipients.
- ❖ Ryan McCarthy
 - Need to improve communication of PIER benefits to Legislators and public. Money is going to many recipients, not just academic researchers
 - Should have a broad definition of rate payer benefits to encompass many of the long term projects that PIER may need to fund.
 - Reliability – As smart grid evolves, need to make sure that reliability is not sacrificed.
 - DG / central generation – A systems perspective could be helpful.
 - Game changers
 - Strong venture capital and private equity communities in California. Opportunity to hook into these communities. Need to make sure we don't duplicate efforts.
 - Mentioned opportunities for home area networks, carbon capture and sequestration, and building integrated solar.
 - Suggested that it would be good to better understand the best use of limited biomass resources.
 - Peter Miller
 - PIER needs to have an effective and nimble program that is broadly focused on the welfare of the citizens in California.

Game Changers & Program Areas

- ❖ Staff made presentations on three game changers (Slides 43-60)
 - Michael Sokol – Advanced community-based energy systems (ACES) demonstrations
 - Beth Chambers – Zero net energy (ZNE) building demonstrations
 - Mike Gravely – Venture Capital (VC) Forum
- ❖ Staff then presented program areas (summarized major points from Slides 66-118)
 - Chris Scruton – Buildings Energy End-use Efficiency
 - Beth Chambers – Industrial, Agricultural, and Water (IAW) efficiency
 - Michael Sokol – Renewable energy
 - Linda Spiegel – Environmental research
 - Phil Misemer – Transportation
 - Pedro Gomez – Energy technology systems integration
 - Laurie ten Hope – Small grants program, WESTCARB
- ❖ Feedback from the Board based on suggested questions (Slide #119)
 - Paul Clanon
 - Community-based initiatives. Could PIER funds be used to leverage EE and RE work in communities, e.g., Los Angeles County?
 - Laurie mentioned that 12 projects have resulted from recent RESCO solicitation.

- Michael Sokol indicated that the ACES demonstration is an opportunity that could dovetail with community programs. Goal is to bring a broad spectrum of stakeholders “to the table.” PIER funding expected to be a small percentage of the total project costs.
 - Money is important in improving energy efficiency for buildings.
 - Beth Chambers indicated that PIER is looking to add to existing programs, while not duplicate effort.
- Jan Sharpless
 - General question on game changers: How will game changers actually meet goals? For instance, what is the goal of ZNE game changer? How will this game changer actually change the market place?
 - Virginia Lew
 - Looking for transformational results.
 - Build on technologies developed by PIER; package PIER technologies into a demonstration.
 - Current ZNE buildings are very expensive; the goal is to bring down costs
 - What is the time period for ZNE buildings?
 - Virginia Lew
 - Multi-year project, particularly for new buildings that are still in the design phase.
 - If ZNE is one of the big demonstration programs that go forward, it will be important to clearly describe the benefits of the program, e.g., articulate goals for cost, reliability, etc.
- Kevin Dasso
 - Game changers need to clearly state the objectives. Need to identify how research will address barriers.
 - The idea of a VC Forum appears appealing and valuable.
 - Focus on large projects seems like a good idea. However, he would like to see projects that address how technologies will be integrated in the grid.
 - DOE is devoting hundreds of millions of dollars in the battery area. How is PIER money leveraged with DOE spending? How are PIER funds being allocated? Should PIER be spending money on land use?
 - Phil Misemer
 - PIER has influenced DOE to fund battery “second use” and has brought federal funding to California.
 - Some DOE priorities are different from those of the California Energy Commission. The PIER funding is used to answer the questions that are important to support California policies and goals.
 - Land use is an important transportation question.
 - Laurie ten Hope
 - Talked about funding allocation. In general, funding follows Loading Order.

- Peter Miller
 - Demonstration projects represent a lot of funding (\$24 million). Key to making these demonstration projects work will be to get co-funding partners to leverage PIER funds.
 - Suggested that there is a role for both tools and widgets. Focus on markets, and then develop tools and/or widgets to support these market needs.
 - Likes the Venture Capital (VC) Forum idea.
- David Geier
 - Suggested that we are trying to do a lot in the portfolio. Suggested that there should be process to filter portfolio projects to make sure projects are consistent with State policies and goals.
 - Demonstration projects sound like they will take a lot of money.
 - Maybe there should be a demonstration project that addresses development of 12,000 MW of new DG in Governor's plan. This is a "concrete" State policy, and perhaps more funding should be focused here.
- Ryan McCarthy
 - Suggested that climate change and transportation do fit within the PIER scope.
 - ZNE and DG projects are important, and are a good focus.
 - Consider a game changer around EVs.
 - Is \$24 million too much for two demonstration programs (5 projects total)? Should funding be spread around to a larger number of smaller dollar value fundamental projects?
- Jim Sweeney
 - Concerned about the things he didn't previously hear
 - Need consistent set of principles to choose projects
 - Suggested that PIER funds focus on California specific issues, and not be used to fund work that will be done elsewhere.
 - As an example, on transportation plans (Slide 98) talk about standardizing PEV battery systems. This is truly a national issue. DOE has not allocated funds, but the issue is not unique to California. For comparison, transportation patterns in California are definitely a California specific concern.
 - Suggested filters for selecting PIER project:
 - If private sector will do work, then don't use PIER funds
 - If federal government will (or could) do the work, then don't use PIER funds
 - PIER budget is relatively small, and need to make sure that PIER money produces that biggest bang for the buck. Perhaps there is too much diversity in proposed PIER program.
- John Minnicucci
 - California is moving faster in many areas compared to the federal government or other states. Therefore, we need to be out ahead in many research areas.
 - Suggested that battery issues will probably be handled by car companies and battery manufacturers.
 - Offered compliments to work done by PIER sub-teams.

- Lots of funding going to RE generation technologies. However, integration of RE and DG technologies is very important. Need to make sure that technologies funded by PIER can be deployed and integrated in the grid.
- PIER should have a balance of both tools and widgets.
- Supports weighting PIER funds towards development and demonstration projects.
- Sean Randolph
 - Focus PIER research on public needs that are specific to California.
 - \$24 million sounds like a lot of funds to spend on two demonstration programs (5 projects total).
 - Important to integrate EVs into grid.
 - New construction versus existing buildings. New construction may remain stagnant for some time. Perhaps ZNE work should be focused on existing buildings rather than new construction.
- Mike DeAngelis
 - How are 2020 goals going to be achieved?
 - Should have vision that goes beyond 2020.
 - Concerned about keeping program funding balanced
 - Long-term research, e.g., the Small Grants program
 - Mid-term research
 - Short-term research (demonstration area)
 - Does not support spending a lot of money on long term research. Small Grants program seems about right.
 - Proposed program has skewed funding toward short term demonstration projects. Not sure this is wise.
 - Mid-term research is important, and there does not seem to be much funding allocated for this important research block.
 - Not sure how smart grid fits into game changer initiatives. Smart grids are important.
 - Not clear how venture forum effort would be a game changer.
 - Laurie indicated that the intent is to increase dialogue and have two-way communication.
 - Sean Randolph indicated that PIER should reach out to people in the private equity community in addition to venture capitalists.
- Steve Schiller
 - Likes the Venture Capital Forum idea, but not sure whether or not it should be classified as a game changer.
 - On smart grids and smart meters, the state of California has made an enormous investment. These technologies could lead to unexpected game changers, and perhaps funds should be spent to accelerate these innovative technologies.
 - Supports the idea of funding more projects, rather than funding smaller number of large projects.
 - Spreads out the risk.
 - May not know what the game changers are today.

- Widgets versus tools: he supports PIER work in both widgets and tools. He also thinks that PIER should support public policy work. Three categories for PIER:
 - Widgets
 - Tools
 - Policy
- Concerned that ZNE may not be a good demonstration. Gut feeling is that this demonstration program will confirm that ZNE is expensive.
- Public policy issues
 - PIER could support a strategic energy plan for the entire State.
 - A proper energy efficiency strategic plan would be helpful
 - Help to inform the decision makers.
 - Address utility business models of the future.
 - Should look at rate designs. Rates can have a bigger impact on consumer behavior than widgets.
- EM&V can be expensive and inconclusive. Perhaps there is a role for PIER to study EM&V.
 - From a public policy perspective, there are two mechanisms for moving forward with energy efficiency
 - Codes and standards
 - Rate payer funded programs
- Supports the idea of funding relatively inexpensive applied programs, rather than relatively expensive demonstration projects
- He supports land use as a topic that PIER should support. Vehicle miles traveled (VMT) is a huge issue for transportation policy.
- Would be happy share PIER concepts with industry groups and members (e.g., business to business communication on financing).

Concluding Remarks

- Commissioner Boyd
 - Disappointed in the ability of the California Energy Commission (CEC) to communicate the work that's been done.
 - There still seems to be a communications breakdown or failure.
 - Could have done a better job of discussing past or on-going game changers. For example, PIER has been supporting smart grid for some time.
 - In hindsight, it may have been useful to talk about existing advisory groups that provide input to PIER program.
 - Electric Vehicles (EVs) are an example of a game changer that PIER has been supporting for several years.
 - Suggested that it might be valuable to know when CEC should stop (or pull back) funding. For example, if DOE picks up a PIER research project, then perhaps CEC funding can be curtailed or eliminated.
 - PIER game changers should be programs that will not get done otherwise.
 - Need to refine, restrict, and explain advisory groups.

- Has heard message from Board members today that proposed demonstrations may be going too far.
- Agrees that PIER funding should be focused on California specific issues.
- Commissioner Weisenmiller
 - Thanked the participants and complimented the PIER staff. Encouraged participants to follow-up with Laurie if there is more input that participants would like to provide after reflecting on today's meeting.
 - Working on the program side and on the political side.
 - Can't emphasize enough that the budget situation is extreme and that the Legislature is faced with very difficult choices.
 - Legislative direction and concerns
 - Need to focus on California issues – don't send money out of state. Spend money in California.
 - Important to control costs and reduce overhead costs.
 - Need to get results quickly and see benefits in the short term.
 - Utility partners have suggested to the Legislature that the PIER program could be eliminated and the funds could be given to utilities to fund demonstration projects.
 - Legislative members are also interested in knowing what technologies or programs get removed from PIER if PIER were to become more focused.
 - How does PIER money make a difference? Need to make the case to the Legislature that PIER money is important and makes a difference.
 - One problem with DOE coordination is that there are uncertainties in DOE's future budget allocation between different technologies and problems that will be addressed. These uncertainties make it difficult for the California Energy Commission (CEC) to develop long range plans that will be well coordinated with future DOE work.
 - Would welcome continued input from the Advisory Board on both the programmatic and the political issues.
- ❖ Laurie ten Hope
 - Mentioned communication materials and recent actions
 - Published 24 fact sheets
 - Shortened the publication processing time (cut out 80% of the time)
 - Indicated that streamlining is being addressed. Referred Board members to streamlining issues outlined on Slide #30. Invited the members to provide feedback on these streamlining recommendations.
 - Mentioned upcoming Venture Capital Forum is tentatively scheduled for June 7.
 - Have put significant effort into quantifying benefits. There are three people focused on benefits:
 - Vanessa Kritlow
 - Jean Baronas
 - Adrienne Kandel
 - The PIER benefits team has worked recently with Jim Sweeney to prepare an evaluation on one aspect of PIER benefits (a 5 page paper was handed out and discussed in the next section).

Benefits

- ❖ Jim Sweeney provided background on the paper.
 - What are the beneficial consequences of PIER program?
 - One benefit is the creation of jobs.
 - One problem is that there is not a lot of readily available data to evaluate creation of jobs from the PIER expenditures. However, one PIER program, the Small Grants program, does have a relatively good set of data. About 25% of Small Grant funding participants have provided feedback on how their companies have evolved following PIER funding.
 - The Small Grant recipients have received over \$1.3 billion of follow-on funding (about a 40:1 leverage from PIER investment).
 - The Small Grant recipients have probably created about 30,000 jobs (about 10,000 direct jobs plus another 20,000 jobs of jobs in supporting industries).
 - Would like to see PIER obtain feedback from all funding recipients on beneficial consequences of PIER funding, not just Small Grant recipients.
 - Would like to see this type of work be done on a continuing basis.
- ❖ Laurie ten Hope
 - Mentioned that a benefits workshop is being planned for May.
- ❖ Steve Schiller
 - Asked about self-reporting and the attribution of benefits.
 - Mentioned the important of remembering the lessons learned.
- ❖ All: There was some discussion on one of the key results from the Small Grants analysis is the significant leveraging that was achieved (40:1 leverage is quite significant).
- ❖ Commissioner Weisenmiller made a few comments on the LAO report which was critical of benefits that have resulted from PIER program.
- ❖ John Boesel
 - Urged that Small Grants benefits be promoted, particularly to Legislature.
 - Suggested that we connect with ARPA-E. Could be a game changer at DOE.
 - Suggested that PIER connect with American Innovation Council.
- ❖ Ken Spence
 - Asked about getting higher level of self reporting (e.g., greater than 25%).
 - Laurie indicated that changes to business practices are being explored.

Public Comments -- none

Concluding Remarks

- ❖ Laurie ten Hope provided a few concluding remarks
 - Strategic budget direction
 - Heard both consistent and conflicting remarks.
 - People generally like the idea of a game changer. However, need more information on partners, amount of money, and path to market. May want to reduce funding for game changers and develop ideas further based on broader conversations with stakeholders.

- Heard desire for more on smart grid and integration issues.
- One of the next steps is to initiate the three advisory subcommittees
 - These committees will be used as the forum for continuing dialogue on (ZNE, renewable, and other demonstrations).
 - Laurie will follow-up with the PIER Advisory Board members to identify participants for subcommittees.
- Need to initiate strategic planning and frame program in a strategic context.
- Laurie asked about timing for next PIER Board meeting – hold in October 2011 or should it happen sooner?
- ❖ John Boesel
 - Need to meet sooner than October. Legislature could adjourn by October. Re-authorization needs to be addressed quickly.
- ❖ One Board member suggested that the next Board meeting be held in July time-frame.
- ❖ Jan Sharpless
 - Asked about when input is needed for Legislature.
 - Asked if driver is bill or budget (is vehicle legislation or budget). Jan suggested that it is probably legislation.
- ❖ Commissioner Boyd
 - Commented on legislative process for re-authorization
 - May need to have a PIER Advisory Board meeting in June/July timeframe.
- ❖ Chairman Weisenmiller
 - Decision on re-authorization may play out in last days of the legislative session.
 - Thanked the participants and the PIER staff.
 - Adjourned the meeting at 5:00 PM.

PIER Advisory Board Membership

March 30, 2011

- Co-chairs: Chair Weisenmiller and Vice Chair Boyd, California Energy Commission
- Three members of the Senate, appointed by the Senate President Pro Tempore
 - Honorable Alex Padilla
 - Honorable Alan Lowenthal
 - Honorable Joe Simitian
- Three members from Assembly, appointed by the Speaker of the Assembly
 - Honorable Steven Bradford
 - Honorable Felipe Fuentes
 - One member remains to be appointed
- Steve Berberich, CAISO, VP and Chief Operating Officer
- John Boesel, CALSTART, President and Chief Executive Officer
- Paul Clanon, California Public Utilities Commission, Executive Director
- Kevin Dasso, Pacific Gas & Electric Company, Senior Director, Smart Grid and Technology Integration
- Mike DeAngelis, Sacramento Municipal Utilities District, Program Manager, Advanced, Renewable & Distributed Generation Technologies
- Stephan Dolezalek, Vantage Point Venture Partners, Managing Director and Group Leader
- David Geier, San Diego Gas & Electric, Senior Vice President, Electric Operations
- Jim Kelly, Southern California Edison, Senior Vice President/Transmission and Distribution Business Unit
- Peter Miller, Natural Resources Defense Council, Inc., Senior Scientist
- Mary Nichols, California Air Resources Board, Chairman
- Sean Randolph, President & CEO, Bay Area Council Economic Institute
- Steven Schiller, California Energy Efficiency Industry Council, Board Chairman
- Jananne Sharpless, Former CARB Chairman and CEC Commissioner
- Byron Sher, Former California State Senator
- Hal Snyder, Vice President, Customer Solutions, Southern California Gas Company
- Jim Sweeney, Stanford University, Professor of Management Science and Engineering
- V. John White, Executive Director, Center for Energy Efficiency and Renewable Technology